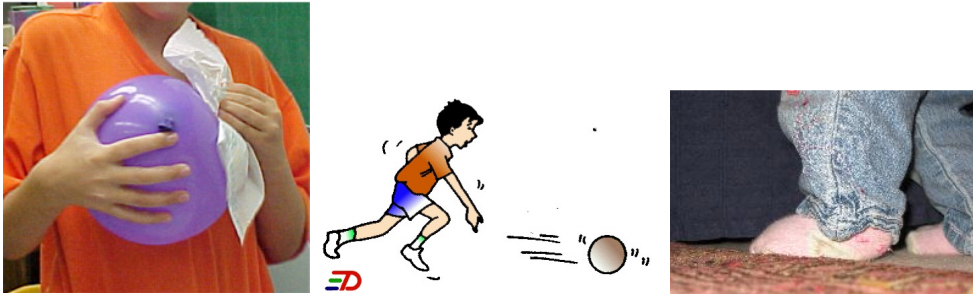


**Friction**- a force that opposes motion when two surfaces are in contact

The amount depends on :

1. The amount of force put on the objects in contact. More force puts the objects even closer together.

Example- dragging your feet on a rug as opposed to walking creates more friction between your feet and the rug



- 2 The type of surface. The rougher the surface, the more friction.



rough



smooth



# Friction ... Pros and Cons

## PROS

- Enables us to stand and move without falling
- Makes a pencil work
- Need friction for tires to move a car

## CONS

- Causes engine parts to wear out
- Causes holes in your socks
- Causes wind and water erosion



## Ways to change friction

- **Decrease Friction by:**

- Using ball bearings or rollers (rolling friction)
- Using lubricant like oil (or detergent for a slippery slide)
- Using a smoother surface
- Reducing the force pushing the objects together

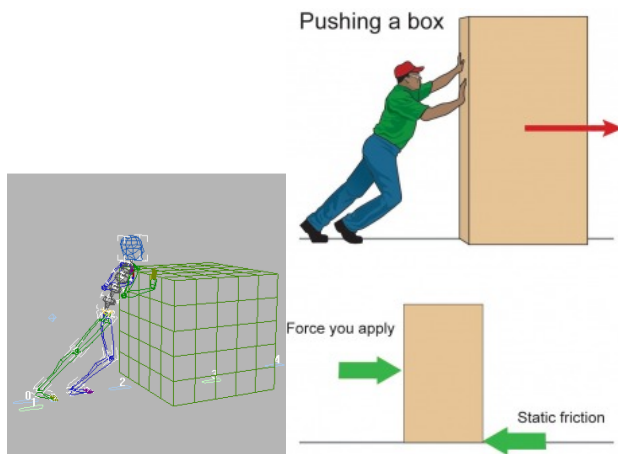
- **Increase Friction by:**

- Increasing the roughness of a surface (like the roads)
- Increasing the contact area (in some cases, like race car tires)

Last Week: We talked about balanced and unbalanced forces. We said that a balanced force occurred when there was no movement because the forces were equal in opposite directions.

These forces could have been a result of ***STATIC FRICTION***.

Static Friction combined with an opposite force will cause no movement because it is **equal to the applying force**.

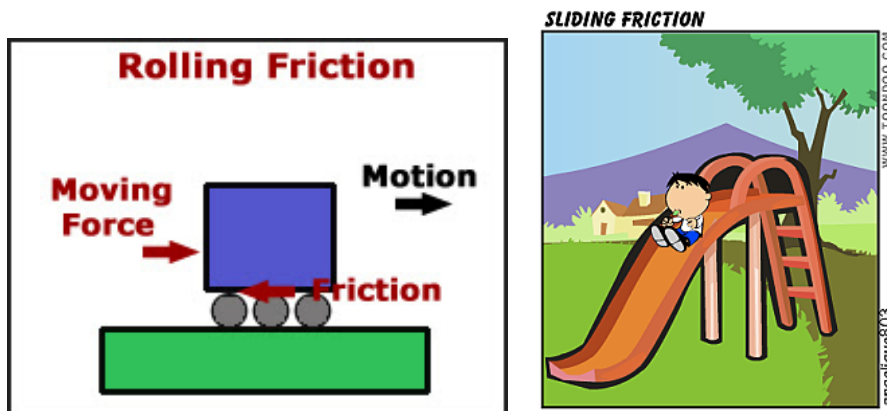


Friction between moving objects is known as ***Kinetic Friction***.

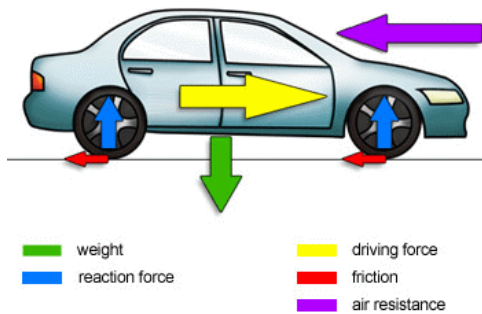
Kinetic Friction can be **sliding or rolling**.

Sliding creates \_\_\_\_\_ friction than rolling. Thus sliding friction makes things \_\_\_\_\_ to move.

Examples.



*Air Resistance and Water Resistance* are also types of friction.



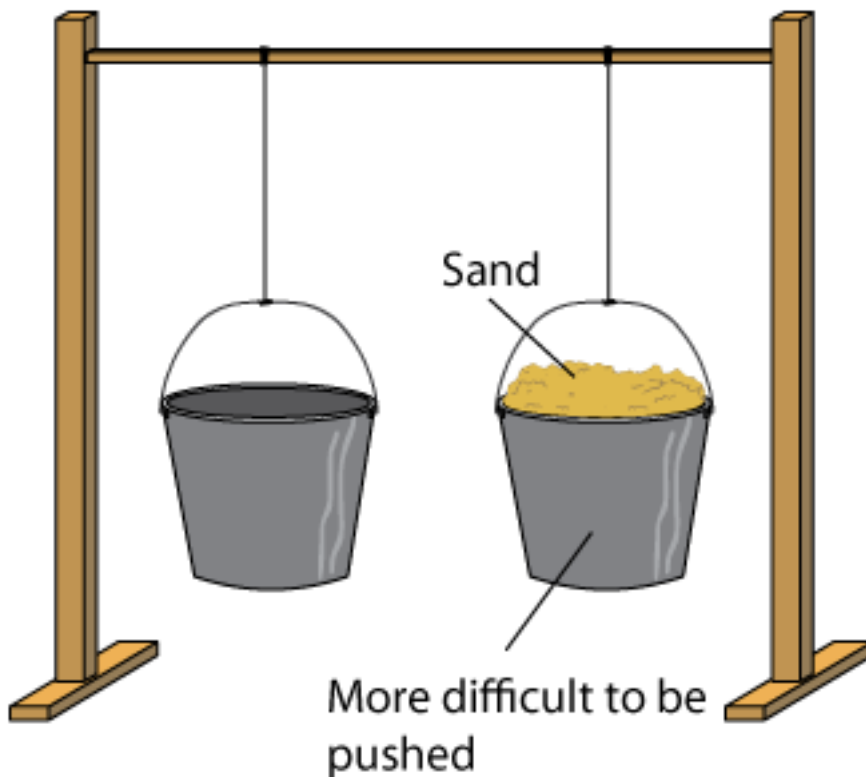
Inertia- the resistance to change

Objects want to keep doing what they are already doing (keep moving or staying at rest). The more mass an object has the more likely it can continue to do what it is already doing.

Ex.

A sitting elephant will be harder to move than a sitting dog.

A moving truck will be harder to stop than a moving bike



and more difficult to stop once it is in motion

